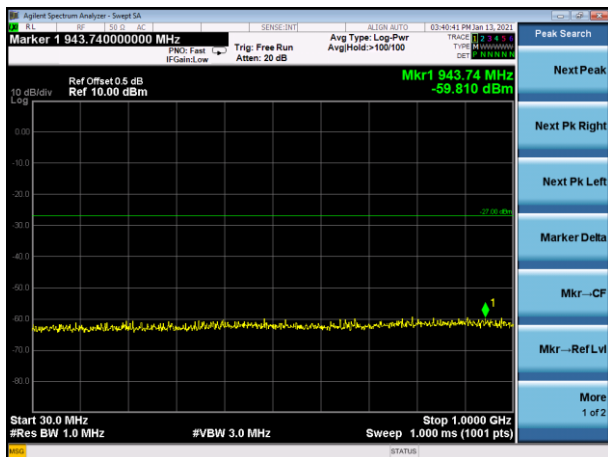
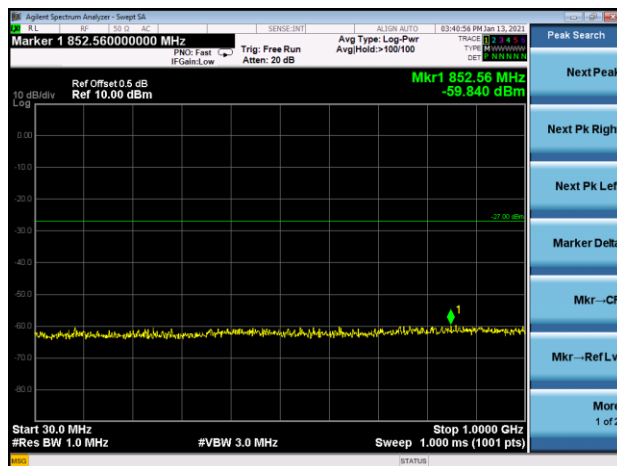


Test Plot

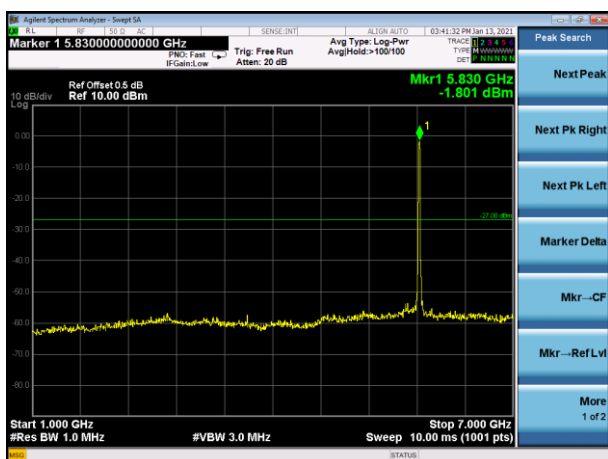
802.11n20 on channel 165



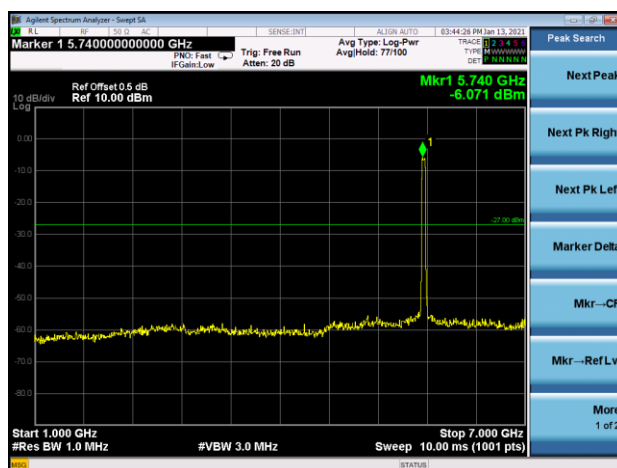
802.11n40 on channel 151



802.11n20 on channel 165



802.11n40 on channel 151



802.11n20 on channel 165

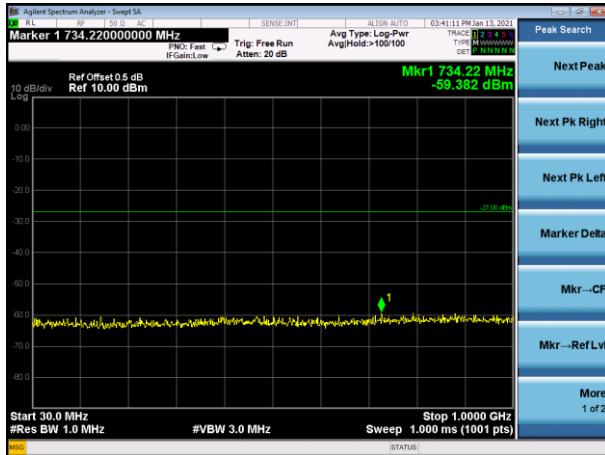


802.11n40 on channel 151

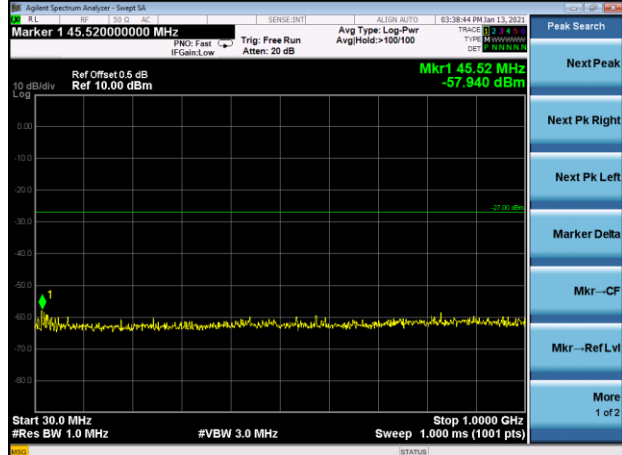


Test Plot

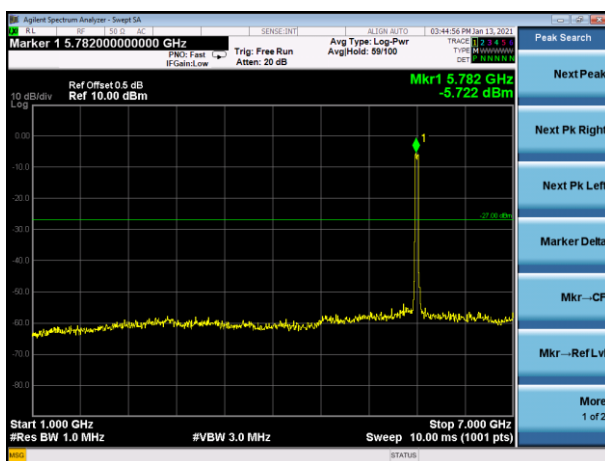
802.11n40 on channel 159



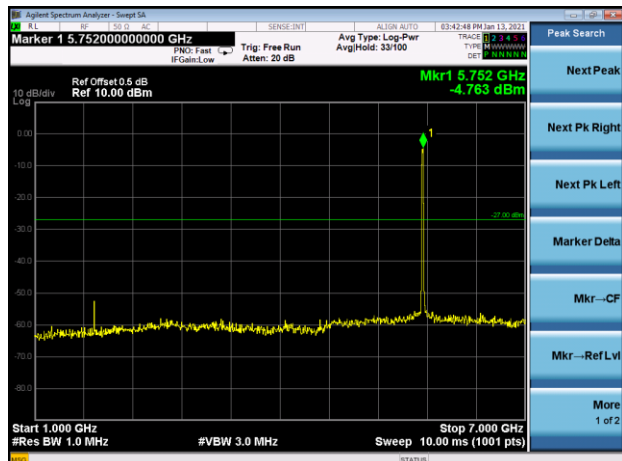
802.11ac20 on channel 149



802.11n40 on channel 159



802.11ac20 on channel 149



802.11n40 on channel 159

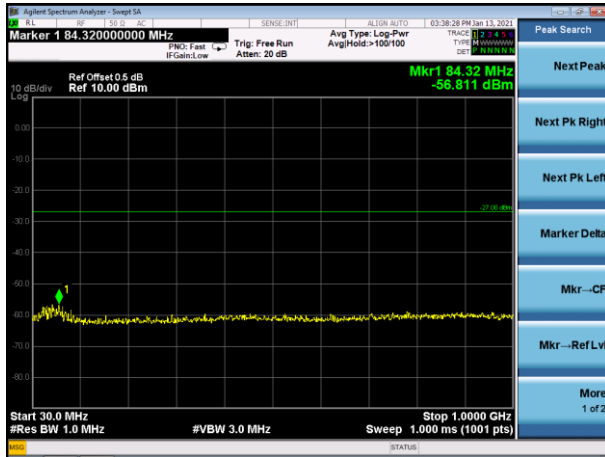


802.11ac20 on channel 149

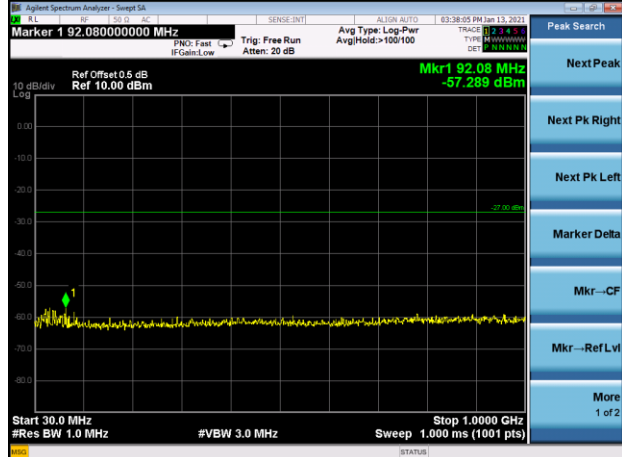


Test Plot

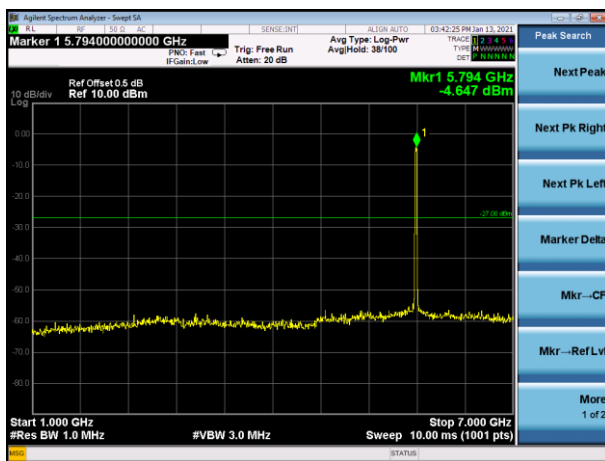
802.11ac20 on channel 157



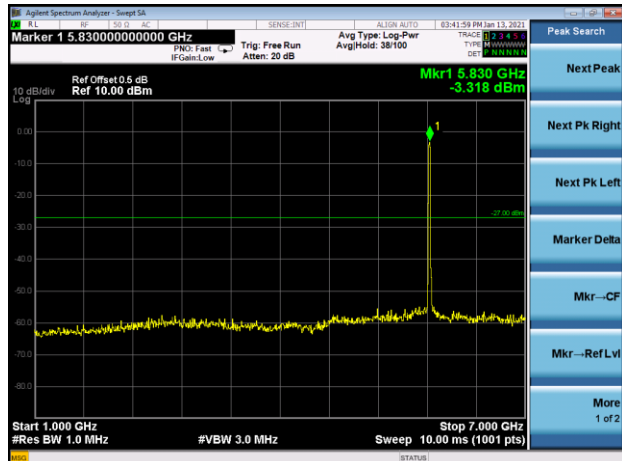
802.11ac20 on channel 165



802.11ac20 on channel 157



802.11ac20 on channel 165



802.11ac20 on channel 157

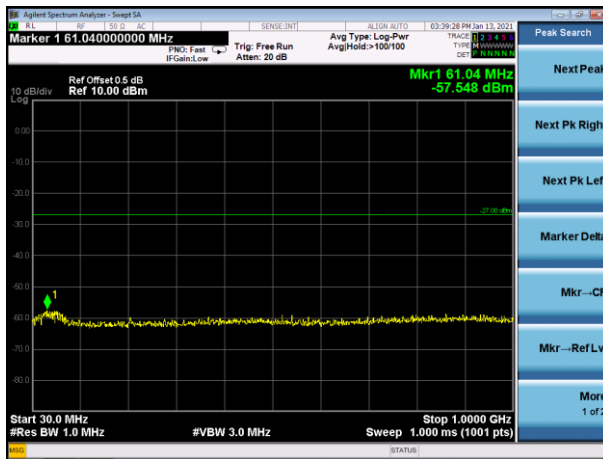


802.11ac20 on channel 165

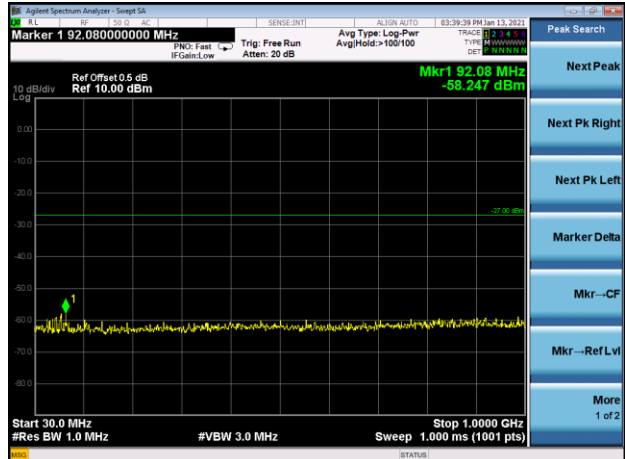


Test Plot

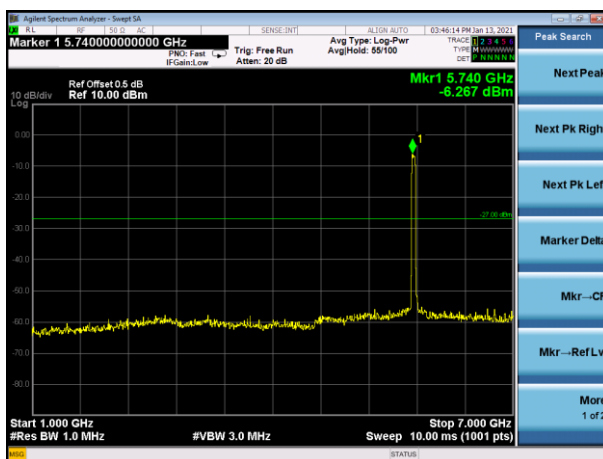
802.11ac40 on channel 151



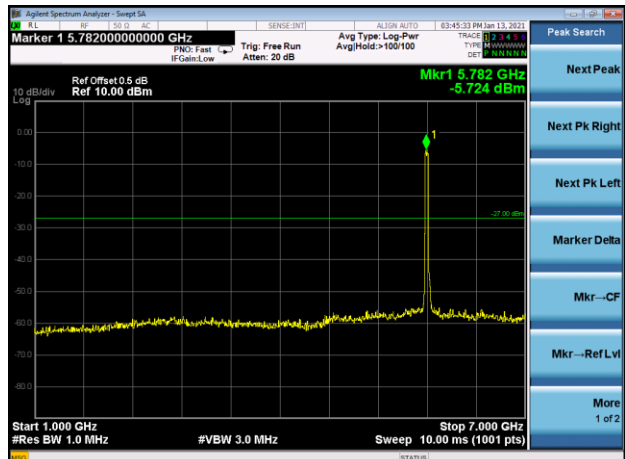
802.11ac40 on channel 159



802.11ac40 on channel 151



802.11 ac40 on channel 159



802.11ac40 on channel 151

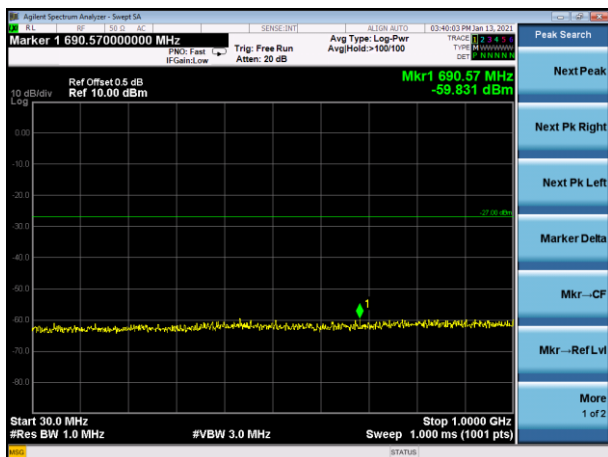


802.11 ac40 on channel 159

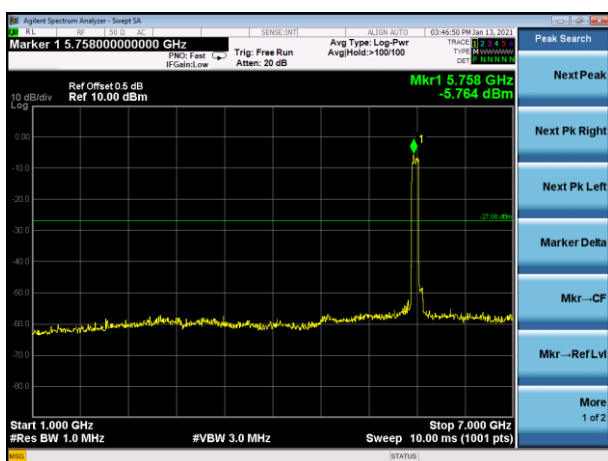


Test Plot

802.11ac80 on channel 155



802.11 ac80 on channel 155



802.11 ac80 on channel 155



13. FREQUENCY STABILITY MEASUREMENT

13.1 Block Diagram Of Test Setup



13.2 Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification)..

13.3 Test procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and he limit is less than ± 20 ppm (IEEE 802.11n specification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is $-20^\circ\text{C} \sim 70^\circ\text{C}$.

13.4 Test Result

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 7.4V
Test Mode :	TX Frequency U-NII-1 (5180-5240MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency : 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	7.40	5180.0117	5180	0.0117	2.2597
		V max (V)	8.14	5180.0134	5180	0.0134	2.5859
		V min (V)	6.66	5180.0181	5180	0.0181	3.5014
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	7.4	T (°C)	-20	5180.0094	5180	0.0094	1.8211
		T (°C)	-10	5180.0105	5180	0.0105	2.0220
		T (°C)	0	5180.0098	5180	0.0098	1.8989
		T (°C)	10	5180.0067	5180	0.0067	1.2954
		T (°C)	20	5180.0068	5180	0.0068	1.3122
		T (°C)	30	5180.0059	5180	0.0059	1.1369
		T (°C)	40	5180.0040	5180	0.0040	0.7677
		T (°C)	50	5180.0129	5180	0.0129	2.4874
		T (°C)	60	5180.0017	5180	0.0017	0.3221
		T (°C)	70	5180.0126	5180	0.0126	2.4402
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	7.40	5200.0039	5200	0.0039	0.7568
		V max (V)	8.14	5200.0039	5200	0.0039	0.7554
		V min (V)	6.66	5200.0111	5200	0.0111	2.1345
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	7.4	T (°C)	-20	5200.00513	5200	0.00513	0.9867
		T (°C)	-10	5200.00270	5200	0.00270	0.5183
		T (°C)	0	5200.00964	5200	0.00964	1.8532
		T (°C)	10	5200.00609	5200	0.00609	1.1719
		T (°C)	20	5200.01153	5200	0.01153	2.2181
		T (°C)	30	5200.00318	5200	0.00318	0.6117
		T (°C)	40	5200.01014	5200	0.01014	1.9500
		T (°C)	50	5200.00792	5200	0.00792	1.5226
		T (°C)	60	5200.00022	5200	0.00022	0.0420
		T (°C)	70	5200.00173	5200	0.00173	0.3336
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	7.40	5240.0015	5240	0.0015	0.2909
		V max (V)	8.14	5240.0093	5240	0.0093	1.7669
		V min (V)	6.66	5240.0006	5240	0.0006	0.1129
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	7.4	T (°C)	-20	5240.0040	5240	0.0040	0.7615
		T (°C)	-10	5240.0072	5240	0.0072	1.3732
		T (°C)	0	5240.0091	5240	0.0091	1.7375
		T (°C)	10	5240.0020	5240	0.0020	0.3745
		T (°C)	20	5240.0088	5240	0.0088	1.6770
		T (°C)	30	5240.0020	5240	0.0020	0.3740
		T (°C)	40	5240.0092	5240	0.0092	1.7623
		T (°C)	50	5240.0064	5240	0.0064	1.2204
		T (°C)	60	5240.0008	5240	0.0008	0.1495
		T (°C)	70	5240.0016	5240	0.0016	0.3043
Limits				5150-5250 MHz			
Result				Complies			

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 7.4V
Hzst Mode :	TX Frequency(5745-5825MHz)		

Voltage vs. Frequency Stabilit

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	7.40	5745.00574	5745	0.00574	0.9983
		V max (V)	8.14	5745.00467	5745	0.00467	0.8122
		V min (V)	6.66	5745.00836	5745	0.00836	1.4558
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	7.4	T (°C)	-20	5745.00887	5745	0.00887	1.5433
		T (°C)	-10	5745.00621	5745	0.00621	1.0802
		T (°C)	0	5745.00051	5745	0.00051	0.0892
		T (°C)	10	5745.01098	5745	0.01098	1.9106
		T (°C)	20	5745.00509	5745	0.00509	0.8851
		T (°C)	30	5745.01344	5745	0.01344	2.3395
		T (°C)	40	5745.00619	5745	0.00619	1.0767
		T (°C)	50	5745.00720	5745	0.00720	1.2540
		T (°C)	60	5745.00168	5745	0.00168	0.2933
		T (°C)	70	5745.00606	5745	0.00606	1.0555
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	7.40	5785.01107	5785	0.01107	1.9127
		V max (V)	8.14	5785.01062	5785	0.01062	1.8361
		V min (V)	6.66	5785.01222	5785	0.01222	2.1130
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	7.4	T (°C)	-20	5785.00515	5785	0.00515	0.8895
		T (°C)	-10	5785.00164	5785	0.00164	0.2835
		T (°C)	0	5785.00753	5785	0.00753	1.3021
		T (°C)	10	5785.00007	5785	0.00007	0.0125
		T (°C)	20	5785.01296	5785	0.01296	2.2402
		T (°C)	30	5785.00841	5785	0.00841	1.4544
		T (°C)	40	5785.00830	5785	0.00830	1.4341
		T (°C)	50	5785.00730	5785	0.00730	1.2613
		T (°C)	60	5785.00345	5785	0.00345	0.5966
		T (°C)	70	5785.00987	5785	0.00987	1.7067
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	7.40	5825.00585	5825	0.00585	1.0046
		V max (V)	8.14	5825.00056	5825	0.00056	0.0965
		V min (V)	6.66	5825.00258	5825	0.00258	0.4430
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	7.4	T (°C)	-20	5825.01166	5825	0.01166	2.0009
		T (°C)	-10	5825.00667	5825	0.00667	1.1444
		T (°C)	0	5825.00048	5825	0.00048	0.0826
		T (°C)	10	5825.01293	5825	0.01293	2.2204
		T (°C)	20	5825.00533	5825	0.00533	0.9153
		T (°C)	30	5825.01159	5825	0.01159	1.9899
		T (°C)	40	5825.00687	5825	0.00687	1.1791
		T (°C)	50	5825.00062	5825	0.00062	0.1068
		T (°C)	60	5825.01016	5825	0.01016	1.7439
		T (°C)	70	5825.01077	5825	0.01077	1.8493
Limits				5725-5850 MHz			
Result				Complies			

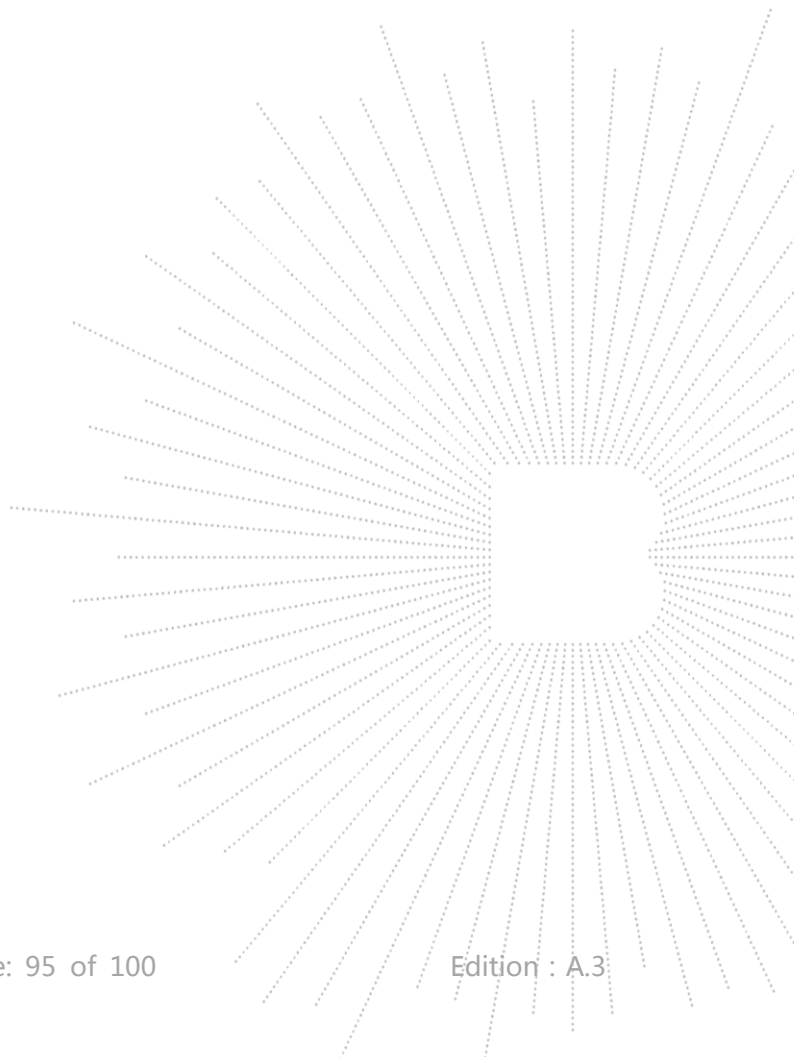
14. ANTENNA REQUIREMENT

14.1 Limit

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

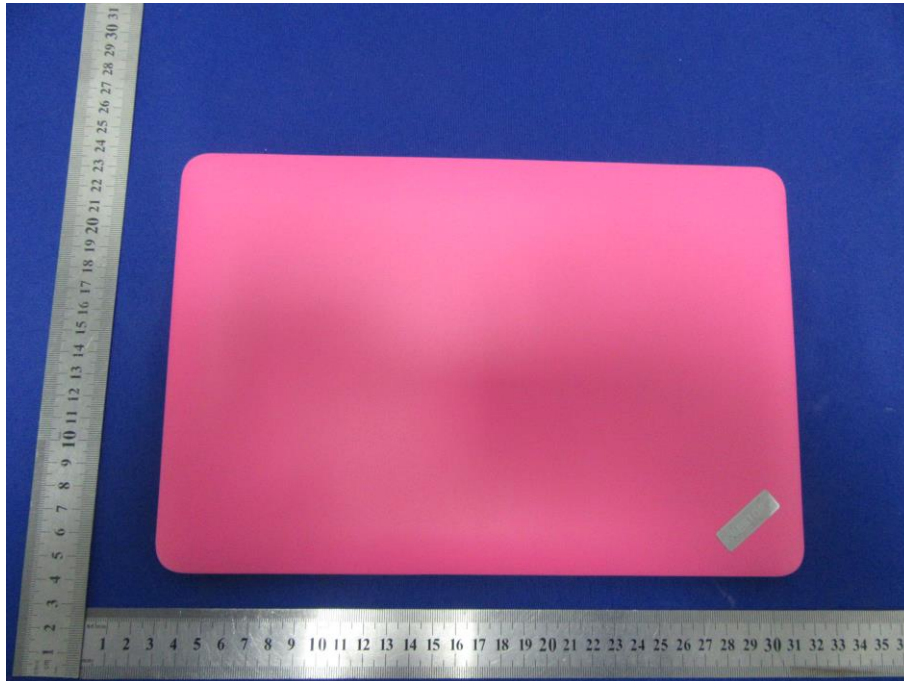
14.2 Test Result

The EUT antenna is FPC antenna, antenna Gain 1dBi, impedance 50Ω. It comply with the standard requirement.

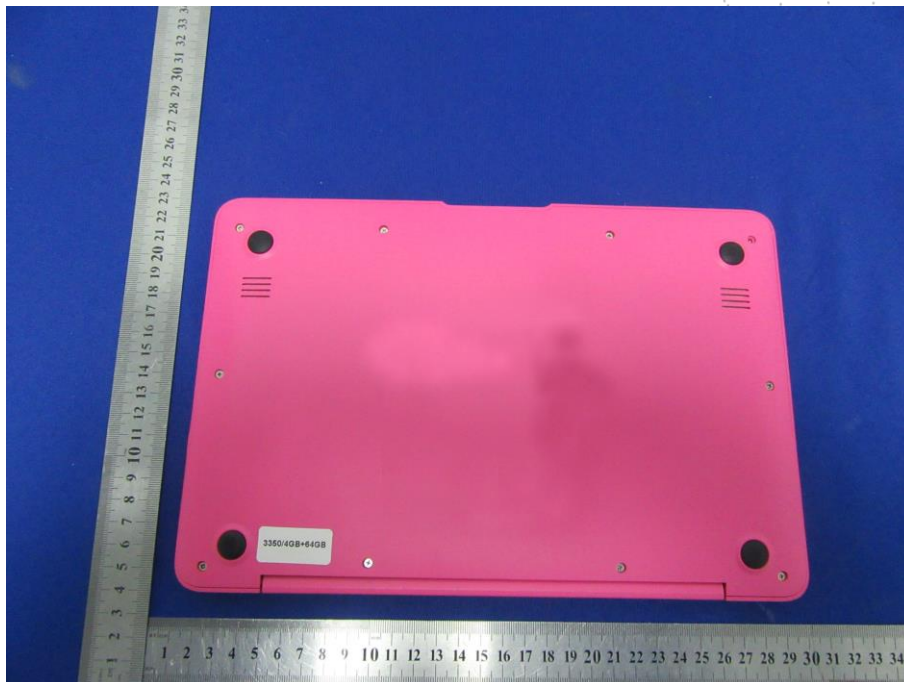


15. EUT PHOTOGRAPHS

EUT Photo 1



EUT Photo 2



EUT Photo 3


16. EUT TEST SETUP PHOTOGRAPHS

Conducted emissions



Radiated Measurement Photos





STATEMENT

- 1.The equipment lists are traceable to the national reference standards.
- 2.The test report can not be partially copied unless prior written approval is issued from our lab.
- 3.The test report is invalid without stamp of laboratory.
- 4.The test report is invalid without signature of person(s) testing and authorizing.
- 5.The test process and test result is only related to the Unit Under Test.
- 6.The quality system of our laboratory is in accordance with ISO/IEC17025.
- 7.If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Tangwei, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

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P.C.: 518103

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***** END *****